



Federal Aviation
Administration

Helicopter Emergency Medical Services



Presentation to:

Designee Conference

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FAA Aviation Safety (AVS)

Rotorcraft Directorate Standards Staff, Safety Management Group - ASW112, Southwest Region

- We are part of the service arm of the FAA family involved in the certification of new helicopters, modifications to and continued operational safety of existing helicopters.
- Our ***mission*** is to provide the safest, most efficient aerospace system in the world.
- Our ***vision*** is to continually improve the safety and efficiency of aviation, while being responsive to our customers and accountable to the public.
- Our ***values*** are based on a passion for Safety, Quality, Integrity, and People.



FAA EMS Task Force Preliminary Findings

- The number of Helicopter Emergency Medical Service (HEMS) accidents have risen dramatically in recent years. In August 2004, an AVS task force was assembled to review these accidents, to determine causal factors and make recommendations to reduce them.
- Initial review shows that ***controlled flight into terrain, night operations, inadvertent IMC, and lack of operational control*** are predominant factors in the reviewed accidents.
- The majority of these accidents occurred beyond the geographic boundaries of the Certificate Holding District Office (CHDO).



U.S. Civil Type Certificated Rotorcraft Accidents

January 1998 – December 2005

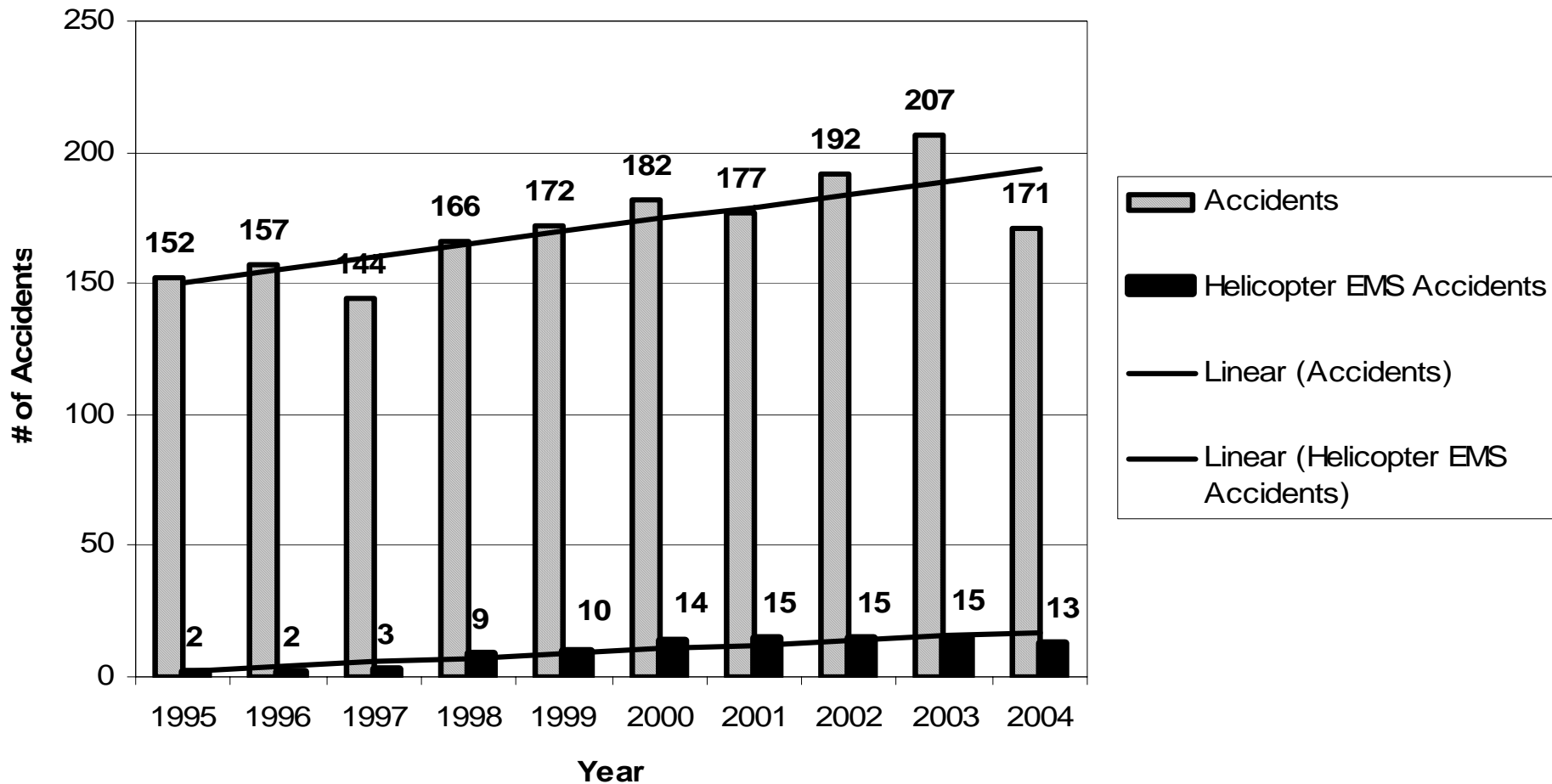
Civil Rotorcraft Accidents:	2000	2001	2002	2003	2004	2005
Civil rotorcraft accidents:	182	177	192	207	171	186
Civil Fatal rotorcraft accidents:	33	28	24	37	30	21
 <u>Operation Types:</u>						
External Load (Part 133):	11	9	8	13	5	6
Restricted Category (predominately Part 137):	25	14	14	19	11	14
Air Medical (Part 91/135):	12	10	13	18	13	15
Gulf of Mexico (Part 91/135):	9	8	6	16	10	9
Air Tour Operators(Part 135):	5	5	5	6	4	7

Data Sources: FAA, NTSB, HAI, and HSAC



US Civil Accidents Compared to HEMS Accidents

1995 -2004









HEMS US Rotorcraft Accidents 98' – 04'

Total HEMS accidents from Jan 1998 – Dec 2004	85
Total HEMS Fatal Accidents 98-04	27
Total Fatalities	74
Total Night HEMS Accidents	45
Total Night Fatal Accidents	21
HEMS Accidents Involving Part 91 Operations(18 fatal)	59
HEMS Accidents Involving Part 135 Operations(9 fatal)	26
HEMS Fatal Accidents VFR into IMC	11
Twins	7
Singles	4
HEMS Fatal Accidents IFR in IFR	1

Data source: FAA EMS Task Force Analysis



2004 HEMS US Rotorcraft Accidents

-  All fatal accidents in VFR only aircraft.
(3 B-407's, 1 B-206, 1 BO-105, 1 AS-350)
-  None were equipped or using enhanced vision systems or terrain awareness warning system.
-  All the HEMS fatal accidents occurred at night.
-  Five of six of the fatal accidents appear to have CFIT characteristics.
-  None of the programs with fatalities are CAMTS accredited.
-  VFR only programs are the largest growth segment of the HEMS industry

International Helicopter Safety Symposium

A quote heard several times at a recent air medical conference:

“..... EMS is the only commercial carrier where the passengers, may have no choice in whom transports them.....”

Why We are Here!!



Pyote, TX March 2004 4 Fatal

Newberry, SC July 2004

4 Fatal



Battle Mt., NV 2004

5 Fatal








Santa Rosa, FL October 2004

3 Fatal



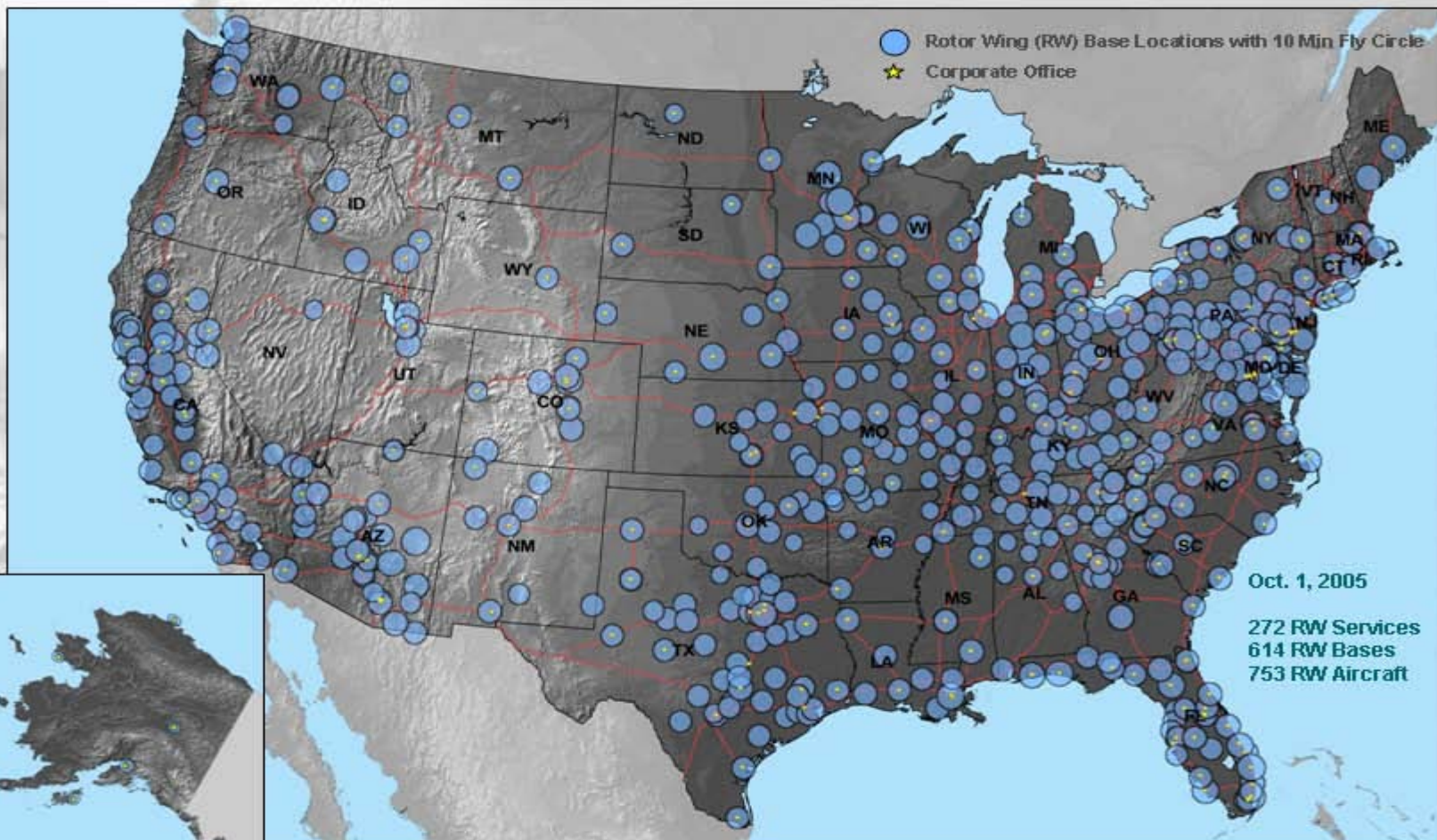
Helicopter Emergency Medical Services (HEMS) Growth

-  Currently, there are approximately 750 RW aircraft flying HEMS, that number is increasing daily.
-  Approximately 300,000 patients transported annually.
-  An EMS aircraft takes off every 90 seconds in the United States.
-  No formal method of tracking, hours, missions, usage.
-  Single engine, non-IFR certified a/c is a large portion of HEMS.

Atlas & Database of Air Medical Services

Third Edition National Air Medical Services GIS Database






ADAMS 2005



Center for Transportation Injury Research (CentIR)
Association of Air Medical Services (AAMS)
-- Support provided by NHTSA & FHWA







FAA & EMS Community Initiatives

-  **CFIT, night operations/WX, and lack of operational control** are predominant factors in the reviewed accidents.
-  **Notice 800.293**, Helicopter Emergency Medical Service Operations
-  **Notice 8000.301** Operational Risk Assessment for Helicopter Emergency Medical Services
-  **AC No. 00-64** Air Medical Resource Management
-  **Notice 8000.307** Special Emphasis Inspection Program for Helicopter Emergency Services

http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgOrders.nsf/MainFrame?OpenFrameSet

FAA & EMS Community Initiatives

-  **HBAT 06-02** HEMS Loss of Control (LOC) and Controlled Flight Into Terrain (CFIT) accident avoidance programs
-  **HBAT 06-01** Helicopter Emergency Services; OpSpec A021/A002 Revisions
-  **Notice 8000.317** OPERATOR TRAINING PROVIDED BY PART 142 TRAINING CENTERS FOR HELICOPTER EMERGENCY MEDICAL SERVICES
-  **Notice 800.318** PUBLIC HELICOPTER EMERGENCY MEDICAL SERVICES (HEMS) OPERATIONS

EMS HELICOPTERS

- EMS INTERIOR MODIFICATIONS
- EMS CRASHWORTHINESS STUDY
- NTSB RECOMMENDATIONS
- DATA REQUIREMENTS FOR STC MODS.
- INTERIOR COMPLIANCE CHECK



EMS CRASHWORTHINESS STUDY THE RISK OF INJURY FOR EMS HEL. OCCUPANTS IN SURVIVABLE CRASHES.

- EMS HELOS 4.5 TIMES RISK OF INJURY
- MAIN CABIN 3 TIMES SERIOUS BACK INJURY & 11 TIMES HEAD INJURIES
- NO DIFFERENCE IN FRONT SEAT EMS
- MODIFICATION TO THE INTERIOR FOR EMS MISSION WAS THE MAIN CAUSE
- ATTENDANT SEATS, EQUIPMENT NOT RESTRAINED PROPERLY, ETC.

NTSB RECOMMENDATIONS

- SHOULDER HARNESS
- NO SIDE FACING SEATS
- INTERIOR STRIKE ZONE
- ENERGY ABSORBING SEATS / HELMETS



AVIATION SAFETY BEGINS WITH SAFE AIRCRAFT

- DATA REQUIREMENTS FOR STC PROJECTS
- INTERIOR COMPLIANCE CHECK



DATA REQUIREMENTS FOR STC PROJECTS

- Check list for Data requirements (Hand out)
- Master drawing list and document list
- Proposed Type Inspection Authorization
- Proposed Flight Manual Supplement
- FAA compliance checklist for the project
- Placard list
- Flammability (Burn test) Test proposal and Test report
- Oxygen system/Failure analysis for LOX system (optional)
- Instructions for continued airworthiness (21.50)



INTERIOR COMPLIANCE CHECK

- ELECTRICAL SYSTEMS
- STRETCHERS/SEATS
- EMERGENCY EVACUATION



INTERIOR COMPLIANCE CHECK contd.

- Oxygen Systems



INTERIOR COMPLIANCE CHECK contd.

- Placards and Markings
- Miscellaneous Requirements



QUESTIONS ?

Handouts available for Interior compliance checks

